



# UNIVERSITY OF TORONTO UNIVERSITY EXTENSION

DIRECTOR: J. R. COULTER, B.A.

ASSISTANT DIRECTOR: W. R. J. KIRK, M.A.

## BUSINESS AND INDUSTRY COURSES

Session 1956 - 1957

### QUALITY CONTROL THROUGH STATISTICAL METHODS

October 1956 - March 1957

Monday evenings

20 lectures

The Toronto Quality Control Society sponsors this Course designed for people in industry who desire to learn about this valuable method and to apply it immediately to their own everyday operating problems. Emphasis will be placed upon the principles of building quality into the product by keeping the various steps of the process within control.

The Course consists of 20 lectures, demonstrations, and practical periods. To derive maximum benefit, students are encouraged to enrol for the entire Course.

Requirements: High school or technical school education with a knowledge of elementary Algebra; familiarity with production and inspection systems of a manufacturing plant or industry.

LECTURER: R.A. LUCAS, Project Manager of Quality Control,  
International Business Machines Company, Ltd.

TIME: Mondays, 7:30 p.m., October 1 - December 10,  
January 7 - March 11

PLACE: Room 2C2, Mechanical Building

FEE: \$35.00 for 20 sessions, including binder, special  
paper requisites and text books.

Please See Reverse Side for Programme

## PROGRAMME

### INTRODUCTION

1. An Introduction to Statistical Quality Control  
Outline of principles and basic concepts

### MEASUREMENTS

2. Presentation of Data  
The systematic collection of data
3. Frequency Distribution  
A picture to see the variation pattern
4. Distribution Shift  
Basic changes in manufacturing conditions
5. Control Charts  
Calculating & Plotting - the application of " $\bar{x}$ " and "R" charts
6. Control Limits  
Application of control limits to data

### COUNTS

7. Expected Frequency  
Basic sampling systems
8. Acceptance by Sampling  
A break even point for inspection
9. Binomial Distribution  
Calculations of "c" and "p" charts
10. Sampling Tables  
Application of tables for calculated risk
11. Operating Characteristics  
Probability of Acceptance with sampling plans
12. Organization  
Quality Control functional layouts

### ADVANCED TECHNIQUES

13. Introduction to Industrial Experimentation  
Estimate of experimental error
14. Fundamental Statistical Conceptions  
Statistical terminology
15. Tests for Significance  
Application of "t" test
16. Tests for Significance  
Application of "F" test
17. Comparison of Variance  
To compare means or spreads of numbers
18. The Chi Square Test  
To determine whether the frequency in a sample is significant
19. Analysis of Variance  
A study of cause and effect relationship
20. Correlation  
To study the effect of independent variables